

WHAT IS CLAIMED IS:

- 1                   1.       A method for averaging two pixel values, comprising:  
2                   decoding an instruction;  
3                   loading a plurality of first operands from a first input register;  
4                   loading a plurality of second operands from a second input register;  
5                   producing an average of one of the plurality of first operands and one of  
6 the plurality of second operands; and  
7                   storing the average in an output register.
- 1                   2.       The method of claim 1, determining how many fields are in each of  
2 the first and second input registers.
- 1                   3.       The method of claim 1, wherein the producing the average  
2 comprises:  
3                   producing a first intermediate result by adding one of the plurality of first  
4 operands to one of the plurality of second operands; and  
5                   producing the average by shifting the first intermediate result to the right  
6 by one binary digit.
- 1                   4.       The method of claim 1, wherein the producing the average  
2 comprises:  
3                   producing a first intermediate result by adding one of the plurality of first  
4 operands, one of the plurality of second operands and a rounding factor; and  
5                   producing the average by shifting the first intermediate result to the right  
6 by one binary digit.
- 1                   5.       The method of claim 1, further comprising rounding the average  
2 before storing the average.
- 1                   6.       The method of claim 1, further comprising:  
2                   evaluating a rounding factor; and  
3                   adding a value to the average.
- 1                   7.       The method of claim 7, wherein the value is one of zero and one.
- 1                   8.       A method for averaging two pixel values, comprising:

- 2 decoding an instruction;
  - 3 loading a first operand from an A1 field of a first input register;
  - 4 loading a second operand from a B1 field of a second input register;
  - 5 producing an average of the first operand and the second operand; and
  - 6 storing the average in a C1 field of an output register.
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- 1 9. The method of claim 8, wherein the instruction is one of a plurality
  - 2 of instructions in a long instruction word.
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- 1 10. The method of claim 8, determining how many fields are in each of
  - 2 the first and second input registers.
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- 1 11. The method of claim 8, wherein the producing an average
  - 2 comprises:
  - 3 producing a first intermediate result by adding one of the plurality of first
  - 4 operands to one of the plurality of second operands; and
  - 5 producing the average by shifting the first intermediate result to the right
  - 6 by one binary digit.
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- 1 12. The method of claim 8, wherein the producing an average
  - 2 comprises:
  - 3 producing a first intermediate result by adding one of the plurality of first
  - 4 operands, one of the plurality of second operands and a rounding factor; and
  - 5 producing the average by shifting the first intermediate result to the right
  - 6 by one binary digit.
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- 1 13. The method of claim 8, further comprising:
  - 2 evaluating a rounding factor; and
  - 3 adding a value to the average.
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- 1 14. The method of claim 13, wherein the value is one of zero and one.
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- 1 15. The method of claim 8, wherein the first input register comprises a
  - 2 plurality of fields.
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- 1 16. The method of claim 8, further comprising rounding the average
  - 2 before storing the average.

1 17. The method of claim 8, further comprising:  
 2 loading a third operand from an A2 field of the first input register;  
 3 loading a fourth operand from a B2 field of the second input register;  
 4 producing a second average of the third operand and the fourth operand;  
 5 and  
 6 storing the second average in a C2 field of the output register.

1 18. A pixel averaging apparatus, comprising  
 2 a first input register comprising a plurality of first fields;  
 3 a second input register comprising a plurality of second fields;  
 4 a plurality of average modules respectively coupled to the first and second  
 5 fields; and  
 6 an output register comprising a plurality of third fields, wherein the third  
 7 fields are respectively coupled to the plurality of average modules.

1 19. The pixel averaging apparatus of claim 18, wherein the average  
 2 module comprises:  
 3 a plurality of adders respectively coupled to the first and second fields; and  
 4 a plurality of shifters respectively coupled to the plurality of adders.

1 20. The pixel averaging apparatus of claim 18, further comprising a  
 2 rounding factor that causes at least one of rounding-up and rounding-down.

1 21. The pixel averaging apparatus of claim 18, wherein a rounding  
 2 factor is added to the first and second fields in the average module.